



About 5-Inch Hose

Depending on where you are stationed, you may have already worked with 5-inch hose. Eventually through attrition, this will become the primary supply hose to be used on Engines, Quints and Tenders throughout TFACA. Apparatus will still carry 300-feet of 3-inch hose in the adjacent supply bed. In addition to supplying the FDC, ground monitor and other applications, 3-inch hose can still be used for supplying the apparatus when warranted by the Company Officer and/or Driver Operator. 5-inch hose for TFACA and it is typically ordered in 100-foot sections; shorter sections are available from Support Services in both 25 and 50-foot sections. Also referred to as LDH (*large diameter hose*), each 100-foot section of dry hose weighs about 102-pounds, and when filled with water, each foot weighs nearly 10-pounds. 5-inch hose is capable of flowing up to 2000-gpm, almost 300% more than a single 3-inch hose.

The **Storz** coupling (*pronounced as “stores”*), is also referred to as a sexless coupling, because both ends are identical and can be joined to any other end of the same diameter. To connect a Storz coupling, the 2 opposing couplings are pressed together such that the hooks of each one are inserted into the slots in the flange of the other. Then they are rotated clock-wise in opposite directions until they are snug and both latches engage. To prevent accidental un-coupling of the hose be sure that both arrows line-up as shown (*this indicates they are locked*).



To uncouple them, depress both latches and rotate the couplings in opposite directions (*counter clock-wise*), and then separate when the hooks and slots are aligned. Storz spanner wrenches are used to make and break Storz couplings.

Requests for additional Storz appliances for apparatus should be initiated through the Battalion Chief.

There are advantages and disadvantages to both 3-inch and 5-inch supply hose. One advantage that 3-inch hose has is redundancy. Laying dual 3-inch lines offers the IC a more reliable continuous supply of water compared to a single 5-inch hose. The primary advantage 5-inch hose has over 3-inch hose is the ability to transport larger quantities of water over longer distances at lower engine speeds (*pump discharge pressure*).

To illustrate this, compare the differences in the following examples:

(Based on coefficients: 3-inch @ 0.72 and 5-inch @ 0.08)

Hydrant pressure needed to flow 400-gpm through 1 300-foot supply line <i>(allowing 20-psi residual)</i> .	3-inch hose	55-psi
	5-inch hose	24-psi

With hydrant pressure of 65-psi and flowing 500-gpm, compare the following distances <i>(allowing 20-psi residual)</i> .	3-inch hose	≈ 250-feet
	5-inch hose	≈ 2250-feet

5-inch hose allows pumpers to be spaced much farther apart in relay operations and also allows a single 5-inch line to stretch much farther than 3-inch hose when being supplied directly off the hydrant.

Flow in GPM	Approximate Friction Loss per 100-feet	
	Single 3-inch hose <i>based on "as measured" FL values</i>	Single 5-inch hose <i>based on "theoretical" FL values FL = 0.08Q²L</i>
300	9-psi	0.72-psi
400	16-psi	1-psi
500	19-psi	2-psi
600	27-psi	3-psi
700	-	4-psi
800	-	5-psi
900	-	6-psi
1000	-	8-psi
1100	-	10-psi
1200	-	12-psi
1300	-	14-psi
1400	-	16-psi
1500	-	18-psi
1600	-	20-psi
2000	-	32-psi

At a minimum, personnel should don helmets, gloves and eye protection while handling hose.

Laying 5-Inch Hose

On forward lays, 5-inch hose is most vulnerable to hanging up at the very beginning of the hose lay and when the apparatus makes a sharp turn. To avoid this, stop the apparatus 20 to 30-feet past the hydrant. The firefighter should exit the apparatus and proceed to the hydrant with the hydrant bag. The hydrant's steamer cap should be removed and the hydrant opened. While the hydrant is flushing, the firefighter should return to the apparatus and deploy the 5-inch hose. The position of the apparatus allows the hose to be pulled almost straight out of the hose bed without catching on floodlights, grab rails, or ladders. If the apparatus needs to make a sharp turn, stop the apparatus and have a firefighter lay the hose in a smooth arc around the corner.

Wrapping the hydrant with LDH can pose a serious risk to firefighters should the hose “hang up” as it exits from the hose bed. It is much safer for the firefighter to “heel” the hose as shown. Once the hose is heeled by the firefighter, they shall signal the Driver to proceed. Always eliminate as many twists as possible prior to charging LDH.



A single 5-inch hose may not fully tap the potential flow from a strong hydrant. Attaching the 2½-inch gate valve to the hydrant port can provide additional flow to another LDH. If a hydrant does not have a 4½-inch steamer or it is not accessible, the 2½-inch to 5-inch Storz adapter can be used to supply the LDH.



To avoid damage to the tailboard and for a straighter hose lay, Driver Operators should lay 5-inch hose around 15-mph (*when apparatus and road conditions permit*) and as close to the side of the road as possible. If the fire is on the opposite side of the street as the water source, lay the line as far down as you can on the same side as the water source before crossing and blocking the street. Drivers should plan their hose lays to accommodate other incoming units.

5-Inch Hose Clamps

The process of breaking the Storz coupling from the supply bed and re-connecting it to the pump intake takes only a few seconds and can be accomplished in the same amount of time it takes to install the clamp, which is why TFACA does not use hose clamps on 5-inch supply hose. Do not attempt to use the 3-inch hose clamp on 5-inch hose.

Charging 5-Inch Hose

In some cases charging LDH can end up like a wet twisted towel resulting in a complete shutdown of the water supply. One way to prevent 5-inch hose from knotting up is to remove as many twists and kinks as possible before charging the hose.

Draining 5-Inch Hose

To reduce the wear on the 5-inch hose and couplings, avoid the following:

- Dragging the Storz coupling on the ground
(*flip the coupling over instead*)
- Dragging the hose on its edge
- Dragging the hose with water in it



One firefighter can hand stretch no more than 100-feet of dry 5-inch hose.

Vacuum Technique

After disconnecting the hose from either the hydrant or the pump, immediately install a cap (*or place a “Z” fold*) on the end of the



hose that the water is going to be drained away from. Next, disconnect the other end of the hose and allow the water to drain. As water exits from the hose, a vacuum is created inside the hose allowing it to lie as flat as possible (*hose lengths should remain coupled*). Allow all but the last 4-feet of water to drain from the hose and stop the flow by making a “Z” fold in the hose about 4-feet from the end. This will maintain the vacuum inside the hose and keep it flat. Now the coupling from the supply bed can be connected to the previously capped or folded hose at the other end, and loaded into the hose bed. When all the hose is loaded into the bed, the folds can be removed from the end of the hose and the remaining water drained.



Using the LDH Hose Roller

After disconnecting the hose from either the hydrant or the pump, immediately install a cap (*or place a “Z” fold*) on the end of the hose that the water is going to be drained away from. Next, disconnect the other end of the hose and allow the water to drain. With 1 firefighter on each side of the hose holding the hose roller, walk the roller through the hose as a 3rd firefighter stays behind keeping the hose taut (*and folded over or capped to keep air from entering the hose*). Allow all but the last 4-feet of water to drain from the hose and stop the flow by making a “Z” fold in the hose about 4-feet from the end. This will help keep the hose flat by keeping the air out. Now the coupling from the supply bed can be connected to the previously capped or folded hose at the other end, and loaded into the hose bed. When all the hose is loaded into the bed, the folds can be removed from the end of the hose and the remaining water drained.

Testing 5-Inch Hose

5-inch hose shall be tested in accordance with the TFACA Hose Manual to a maximum pressure of 200-psi for 5-minutes.

Repairs Made to 5-Inch Hose

In some cases damaged 5-inch hose may be repaired by cutting out the damaged section and re-coupling the hose. Damaged hose shall be tagged and sent to Support Services with a written explanation why the hose failed. The Fleet Director will make a determination to repair the hose. Repairs to 5-inch hose will only be performed by authorized members of Support Services. Repaired hose shall be returned back to the Station and shall be tested in accordance with the TFACA Hose Manual prior to being placed back in service. The results of the test shall be entered in the Hose Testing folder located on the Department’s “S” Drive.